

LISTING OF CLAIMS

Claim 1. (Original) A semiconductor device having a metal silicide contact structure, comprising:

 a substrate;
 an insulation layer having an opening formed on the substrate;
 a metal silicide layer formed in the opening of the insulation layer; and
 a conductive layer formed on the metal silicide layer,
 wherein the metal silicide layer is formed between the substrate and the conductive layer and the metal silicide layer has a thickness of less than about 100 Å.

Claim 2. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 1, wherein the conductive layer is a semiconductor layer.

Claim 3. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 1, wherein the metal silicide layer is formed using a native metal silicide having a first phase and a second phase, the second phase having a first stoichiometrical composition ratio that is different from a second stoichiometrical composition ratio of the first phase.

Claim 4. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 1, wherein the substrate is comprised of a material selected from the group consisting of silicon, silicon germanium, silicon-on-insulator (SOI), and silicon-germanium-on-insulator (SGOI).

Claim 5. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 1, further comprising a silicon layer or a silicon germanium layer in a form of a crystalline phase or an amorphous phase formed on the substrate.

Claim 6. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 1, wherein the conductive layer comprises a silicon layer or a silicon germanium layer in a form of a crystalline phase or an amorphous phase.

Claim 7. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 1, wherein the conductive layer is doped polycrystalline silicon.

Claim 8. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 1, wherein the metal silicide layer has a resistance between about 3 to 20 Ω/\square .

Claim 9. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 1, further comprising a gate oxide film formed on the substrate.

Claim 10. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 9, further comprising a gate stack formed on the gate oxide film.

Claim 11. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 10, further comprising gate sidewall spacers formed on the sides of the gate stack.

Claim 12. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 9, further comprising a source/drain area formed on the substrate exposed by the opening in the insulation layer.

Claim 13. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 1, further comprising:

field oxide films formed on the substrate; and
a pad layer formed between the field oxide films and below the metal silicide layer.

Claim 14. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 13, and further comprising:

a second insulation layer formed above the field oxide films and the pad layer;
a bit line stack formed on the second insulation layer; and
a third insulation layer formed on the bit line stack and the second insulation layer.

Claim 15. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 1, wherein the conductive layer is titanium nitride (TiN).

Claim 16. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 1, wherein the conductive layer is a metallic material.

Claim 17. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 15, further comprising a metal layer formed on the conductive layer.

Claim 18. (Original) A semiconductor device having a metal silicide contact structure, comprising:

- a substrate;
- a gate oxide film formed on the substrate;
- a gate stack formed on the gate oxide film;
- a metal silicide layer formed on the substrate and the gate stack; and
- a capping layer formed above the metal silicide layer, wherein the metal silicide layer has a thickness less than about 100 Å.

Claim 19. (Original) A semiconductor device having a metal silicide contact structure as claimed in claim 18, further comprising:

- a source/drain area formed on the substrate;
- a lightly-doped source/drain area formed on the substrate between the metal silicide layer formed on the substrate and the gate oxide film; and
- gate sidewall spacers formed on sides of the gate stack.

Claims 20-43. (Cancelled)